

MEMBERS' COMMITMENT IN ONLINE HEALTH COMMUNITIES: THE CASE OF MEDICINEAFRICA

Research in Progress

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Abstract

Online communities have gained multidisciplinary attention in both the academic and practitioner literature. Some of this literature has taken a focus on online communities in the healthcare context (aka online health communities), with recent studies highlighting their potential to contribute to social value creation, for example by reducing the divide between regional and other health disparities. In this research-in-progress paper, we present a case study we conducted with MedicineAfrica; an online health community with the aim of improving healthcare education in countries with fragile healthcare systems. Based on interviews, online observations, and documentary analysis, our study explores: (a) the factors that enhance volunteer-members' commitment to the online community, resulting in them staying longer than they initially expected; and (b) the impact of members' commitment on the roles they undertake on the online platform. It is found that, with increased commitment, members of online health communities tend to undertake not just more roles but roles with leading responsibilities as well as take on initiatives for new online activities. We discuss our preliminary analysis so far, which is followed by the study's implications and further research.

Keywords: online health communities, members, commitment, motivation

1. Introduction

Increasingly, online communities (OCs) are recognized as spaces for supporting virtual collaborations and co-production initiatives (Hiltz and Turoff, 2002; Ganley and Lample, 2009; Ross, 2007). Healthcare features as one of the sectors that have benefited from these initiatives, with concepts such as digital health and digitized patients taking prominence in academic and practitioners' literature (Lupton, 2018). Several examples of online healthcare support initiatives have been studied in the literature (e.g. Bernardi, 2016). In addition to these, researchers recently identified the important role that OCs play in value creation (Barrett et al., 2016) and social value creation in particular, for example by reducing the divide between regional and other health disparities (Goh et al., 2016). According to these researchers, OCs can reduce health capability gaps and subsequently generate social value for the participants involved and their regions.

We extend research in this area with the study of MedicineAfrica—an OC that was developed with the aim of promoting global health partnerships in the sharing of health education and research and, in doing so, supporting remote, fragile and post-conflict countries. Such online initiatives offer the opportunity for social value creation through knowledge sharing and learning among the dispersed partners. Despite their many benefits, they experience high risks of failures too. Online health communities depend on the voluntary involvement and participation of various individuals such as medical experts often in developed countries who give freely their time to support and educate their colleagues in developing countries. In this study, we are specifically interested in understanding the effect of OC members' commitment in the OC context. In particular, the driving question of the study is: What are the factors that make OC volunteer-members increase their commitment to the OC and what is the impact of their increased commitment on the roles they undertake within the OC?

In the following sections, we present relevant literature in the areas of OCs and commitment in the OC context, and continue with our research site, MedicineAfrica, our research participants and the adopted methods. We subsequently present our preliminary analysis, and briefly discuss the theoretical and practical implications as well as our next steps in terms of future work.

2. Literature Review

OCs present a form of a virtual organization that not only enables interactions among strangers (Bate-man et al., 2011), but also allows collaboration to take place in unprecedented ways, not previously theorized (Faraj et al., 2011). They have been described as groups of people who communicate, interact and develop relationships within a technology-mediated organizing space that is symbolically defined by topic of interest (Lee et al., 2002) or a shared practice (Ren et al., 2007; Soekijad et al., 2011; Wasko and Faraj, 2005). OCs are therefore user-centric as their success and growth depend on the active participation of their members who voluntarily give up their time and effort in community activities and are strangers among themselves. Due to their unique characteristics, OCs have become increasingly popular in studies on social interactions and online collaborations. Much attention has been paid to the role of OCs in co-productive initiatives such as open source software (e.g. O'Mahony and Ferraro, 2007; Von Krogh et al., 2003). Less attention however has been paid to how OCs bridge the knowledge gap between different countries. Some recognition exists as indicated above on the role of OCs in social value creation.

There have been pivotal studies concerning how OCs can support healthcare (Goldschmidt and Greene-Ryan, 2014). Research has also considered how students of the medical profession learn online, integrating this with using health information technology systems that they will be using when they are working. It has been established that it is important to understand how technology is already embedded into students' lives and take advantage of the habits they already have (Han et al., 2014). However, one of the main ways digital platforms are used in medicine is by health support communities; these can be run by the government, private entities, disease-specific organizations and private individuals or groups (e.g. Bernardi and Wu, 2017). They are used to exchange advice and knowledge among

patients about both their medical requirements and how to effectively deal with health professionals and representatives (Foster, 2016).

When discussing the types of activity that takes place in OCs and other digital platforms, the social psychology and social science fields have been extensively involved, particularly in exploring individual motivations and behaviours when using or contributing to a particular platform and how collaboration occurs using online platforms (Ardichvili et al., 2003; Bandura, 1999; Benlian and Hess, 2011; Faraj et al., 2016; Panteli, 2016; Yen et al., 2011). An important feature of OCs is that they are user-centred and their success depends on users' active involvement in community activities and interests (Agarwal et al., 2007). Different reasons for joining OCs have been identified in the literature, ranging from intrinsic to extrinsic motivations (e.g. Wasko and Faraj, 2005; Lakhani and Wolf, 2005). Researchers have also examined members' retention and turnover and their impact on collaboration (Ransbotham and Kane 2011; Kane et al., 2014). OC sustainability and survival depends on members' ongoing and active participation (Bock et al., 2015).

Our position is that, for OCs to be sustainable, it is not just membership involvement that is needed, but also commitment (Ren and Kraut, 2011). Drawing on the organizational commitment theory, commitment is defined as the psychological bond that an individual has towards a specific organization. Due to this bond, individuals are kept engaged and loyal to the organization (Wiener, 1982). A sense of dependence, a feeling of attachment and a sense of obligation have been identified as sources of commitment in the organizational literature. These subsequently led to a typology of organizational commitment that includes *continuance or need-based commitment* which refers to the need to continue to be attached to the group due to the desired benefits to the individual involved; *affective commitment* which refers to an emotional connection that the individual has towards the organization; and third, *normative commitment* which refers to an obligation that the individual has towards the organization and its other members (Meyer and Allen, 1991). Bateman et al. (2011) examined the impacts of this typology on members' behaviour in the OC context. According to their study, all three types of commitment can co-exist and contribute to different OC behaviours, with the first leading to more threads, the second to more replies and the third to moderating behaviour.

The limited studies on OC members' commitment have so far examined how members' commitment affected their online behaviour in terms of their degree and type of involvement in the OC forums. In our study, we extend research in this area by examining the impact of OC commitment on the roles that members' undertake online.

3. Research Design

We took the case of MedicineAfrica which has been described as an e-health innovation with positive effects for post-conflict countries (Woodward et al., 2014). As a digital platform, MedicineAfrica enables online support between UK-based healthcare professionals and healthcare practitioners and learners in countries with weak healthcare systems with the aim of promoting healthcare education. Per their website:

"MedicineAfrica connects the global healthcare workforce online. We support improved delivery of high quality patient care, the building of strong healthcare systems, and better health for all" (MedicineAfrica website).

MedicineAfrica is developed at low bandwidth to enable connectivity and interactivity with the OC dispersed members in the developing countries in which it is available. Online tutorials—delivered every Sunday evening—are text-based, yet interactive, as they give learners the opportunity to interact with one another and to ask questions during the virtual teaching sessions. They are often coupled with practical sessions, delivered by locally based instructors. As one of the participants in the study described it:

"A course can be organized by teachers and then the case can be uploaded by either the learners or by the teachers themselves and then there is an online appointment where the... instructor and the learners come together and present their cases. Usually the instructor leads in a formal classroom

style, where you can introduce the course outline, the teaching methodology, the aim of the course and then is it's like an... emotional exchange between the people where the learners can talk to the instructor and the instructor can lead the class at a distance. It doesn't have visual aids, it's only text-based" (P2).

| Participant | Gender | Professional background | Initial OC role | Current OC role | Joined OC in | Location |
|-------------|--------|---------------------------|---------------------------------|-----------------------|--------------|-------------|
| 1 | M | Public health | MedicineAfrica Founder | Senior Manager | 2008 | UK |
| 2 | F | International Development | Administrator | Site manager | 2013 | UK |
| 3 | M | Human Rights | Programme Manager | Programme Manager | 2015 | UK |
| 4 | M | Psychiatry | Programme Director | Manager | 2010 | Germany |
| 5 | F | Public Health | Advisor volunteer | Group Lead | 2016 | UK |
| 6 | F | Psychiatry | Course Lead | Programme Lead | 2009 | UK |
| 7 | F | Obstetrics/gynaecology | Course Lead | Clinical Lead | 2011 | UK |
| 8 | F | General medicine | Medical Student | Course lead | 2011 | East Africa |
| 9 | F | Surgeon | Course Lead | Surgical Lead | 2012 | UK |
| 10. | F | Psychiatry | Medical Student | Mental health Co-lead | 2010 | UK |
| 11 | M | General medicine | Founding Member and Course Lead | Clinical Co-ordinator | 2008 | East Africa |
| 12 | M | Psychiatry | Course Lead | Programme Lead | 2015 | UK |
| 13 | M | Forensic Psychology | Course Lead | Course Lead | 2014 | UK |
| 14 | F | Public health | Medical Student | Clinical Co-ordinator | 2008 | East Africa |
| 15 | M | Psychiatry | Medical Student | Course Lead | 2015 | Middle East |

Table 1. Presentation of research participants.

In line with the case study approach allowing for different data collection methods (Cavaye, 1996; Yin, 2014), we adopted interviewing (Table 1 shows our research participants) as our main data collection method, coupled with online observation of the digital platform as well as review of secondary sources such as research outputs relative to MedicineAfrica that span a period of nearly 10 years. The data collection period took place between November 2016 and November 2017. Our online observations focused on the online archive relative to a number of tutorials that had taken place as part of two of MedicineAfrica's online programmes. In terms of interviews, to date (April 2018), we have conducted 17 interviews; we began with two in-depth interviews with P1 and P2 whom we have so far interviewed twice, and continued with semi-structured interviews in line with our aims. Another six of our first interviewees had managerial roles at the time of the interview, and the rest were medical/clinical contributors and had teaching roles.

During our initial interviews, we used the snowballing technique to identify more participants. We specifically asked them to recommend participants from other functional areas, geographical locations, and partnership in order to get a stratified sample that could help us paint a rich picture of the organization (Eisenhardt, 1989). Overall, the interviews aimed to explore participants' motives when making the decision to volunteer on MedicineAfrica programmes (primarily in Africa and Middle-East) and the experiences and views with the platform. Interviews were conducted on Skype, with the exception of P15 who shared his responses with us via email due to unavailability. All interviews were transcribed and inserted into QSR NVivo 10 together with the aforementioned materials. On NVivo, the dataset is currently being analysed thematically following Braun and Clarke's (2006) steps. We have coded all quotes related to the participants' commitment and we are now in the process of linking the coded quotes to the different stages and types of commitment that are emerging during this analysis. So far, the documents and research outputs we have reviewed, as well as the online observations we have conducted, have been used as complementary methods for familiarization purposes with the platform itself.

4. Findings

Our interviews revealed the multidimensional character of MedicineAfrica, with participants referring to it as a connective platform, an eHealth initiative, an online template, and a *human* digital platform.

"You start talking about some of the things that happen on that online platform, and it's extremely interesting and exciting because it's very human. It's very much to do with individuals. And the thing that I have found is that if you talk about digital platforms and numbers of people you're reaching, people don't really hook onto it. But if you talk about an online platform and the individual stories, and the human side of how you're really contacting with people in remote places, and really changing how they do their work, that is the story and that, I mean, that's the way to say what it is" (P2).

Doctor volunteers in the remote and fragile regions we interviewed argued that, in their countries, they have limited visibility over how medicine is practised in other countries and settings. For them, MedicineAfrica acts as a window for providing opportunities to local students to improve their learning and develop new capabilities and skills which they can then apply in their own local practices:

"We are an un-recognized country... We actually have limited resources, so this is a, kind of, a window that shows us how people actually work in a setting other than ours" (P14).

So who are the members who contribute to this positive impact that is being witnessed? As with any OC, it is the voluntary knowledge sharing that takes place what contributes to this common good that is seen as improving people's lives in remote areas.

4.1 Initial Motives for Joining MedicineAfrica

A core question of the study was about understanding why volunteers joined MedicineAfrica in the first place. Three main reasons, or a combination of these, were commonly mentioned by the participants: (a) the opportunity to practise skills and gain new skills (this was especially the case in newly trained doctors; (b) the wish to give something back to their own country (this was the case among doctors who left their home country and came to the UK to continue their training or for work); and (c) and the desire to make better use of their free time. The following quotes support these findings:

"Wanting to do something slightly outside of my sort of, nine to five work, and also, if I'm honest, it's you know, good for the CV to do that kind of thing because I was still in training. So you know, it was good teaching experience, good leadership experience" (P6).

For P5 below who got acquainted to MedicineAfrica through another voluntary commitment, MedicineAfrica presented her with a worthwhile opportunity to put her skills into practice while also contributing to a good cause:

"I was looking for more opportunities to engage in international public health. And the opportunity came up to become involved, and it seemed to me a worthwhile thing to do. It was interesting, and I

could see the benefits of doing that. And I could see also that I could probably deploy my skillset to good effect, really. So that was in a nutshell, the reason" (P5).

One of our doctor volunteers in the UK explained that there was much to be learned in the Western world from how medicine is practised in regions with poor resources. For this participant, getting involved with MedicineAfrica is a win-win situation:

"Well, I think [East African country] is quite an interesting place; really different, not a place a medical student can easily visit. So, it seemed like particularly exciting part of the world to become... To learn about, to come in contact with, and to share their experience with medical students in the developed world. The extreme contrast in terms of resources was significant. So, knowing that the patients, and clinicians, and students have such limited access to resources, while we have such an abundance, was a factor, as a, kind of, moral goal in terms of, this is a good thing to do, and a generous and worthwhile thing to do with your educational knowledge" (P10).

4.2 Developing Commitment towards MedicineAfrica

As with other OCs, the success and growth of MedicineAfrica is linked to members' ongoing and voluntary contribution and participation. Its founder highlighted that commitment and long-term involvement are paramount components of MedicineAfrica's sustained success:

"Committing to our approach, and committing to see that happens across a period of time is important. I think, for me, you know, it's on the whole, been an endeavour of love, rather than paid employment as such. And therefore... the motivation has to come from it being a created exercise, which did try to solve a problem, which I believe in. And I guess that's what's kept me motivated" (P1).

This idea of being committed was corroborated by the rest of the members we interviewed, managers and doctors. As the site manager commented:

"Volunteers are the core of this. This wouldn't happen at all without volunteers. And they do show up, and they do love it, and they do get something really from it" (P2).

We thus asked explicitly *why* they continued to take part as several of them have been with the initiative for several years and some even from its conception. For most of them, what enhanced their commitment was simply the fact that they find their involvement in MedicineAfrica meaningful:

"It's something that I enjoy. It's something that I create the time for and it's something that I'm dedicated to do... Simply being passionate about training and teaching medical education and helping people in need" (P13).

This sense of fulfilment was to be strongly linked to the idea of contribution to a greater good via the generation of social value for the OC remote members of the OC:

"I could tell through the interactions that they were learning a lot, and they were really grateful for the time that I'd given to them. And, you know, it's not much for me; an hour or two sitting at home, and I guess it's no different than giving up an hour or two teaching here. But I know that I'm teaching a group of people that wouldn't necessarily get that teaching, and so they're very grateful for it. And a lot of the students don't get very much surgical training, so I can potentially impact patient outcomes by what I teach them. If patients are going to get better care as the result of what the students are learning, then that's very rewarding" (P9).

As part of their commitment to MedicineAfrica, we noticed that some members have changed roles over the years, from students to course leads or from course leads to programme coordinators and managers. Some talked to us enthusiastically about their growing commitment to MedicineAfrica and the possibilities that this affords in terms of expanding their portfolio of activities on the platform:

"And what keeps me going and keeps me motivated is those volunteer doctors that are giving their time, giving their efforts, giving their knowledge, giving 100% of their commitment. And showing that commitment makes me more committed to make those students get the best of the MedicineAfrica tutorial and never give up" (P14).

Others saw that there is an expectation they need to meet. We found that this expectation contributed to the interviewees' continued commitment by creating a sense of responsibility, and also personal fulfilment and satisfaction. For example, P10 feels a sense of responsibility every time she teaches on the OC:

"When you log in and see 20 students there waiting for their tutor, it does feel like a real classroom" (P10).

Networking featured as an additional reason that contributes to the growing commitment shown by some members. Networking was seen as opportunity that arises from being part of MedicineAfrica. On the one hand,

"You make friends, you make good professional relationships I think with people all about the world really" (P13).

And on the other,

"I was interested to get to know other people within their department, who were interested in global health and global surgery. And I think that's a strong motivating factor to why I've remained in the role" (P9).

It follows that a range of factors have contributed to the increased sense of commitment towards the platform including attachment, obligation and dependence, which are factors identified in the literature, but also additional factors such as fulfilment and reciprocity linked to opportunities to learn and network with likeminded individuals.

4.3 Growing Commitment, Growing Roles

When asked about whether they see themselves with MedicineAfrica in the long-term, regardless of how long they had already been with MedicineAfrica, interviewees responded that not only do they see themselves staying with it, but they see themselves growing with it, for example, by changing roles and also by contributing to its further improvements:

"Definitely. I wouldn't stop. And I'm going to finish my training soon, so I'm going to be a consultant in the next two months, hopefully, and I'm really keen to continue this, because as I said, it's fulfilling, it's rewarding, and also, we kind of bring some lessons from their experience to our work here" (P12).

Another participant sees herself not just continuing, but also undertaking new initiatives within MedicineAfrica that would create more opportunities for those based and trained in poorly resourced countries, such as [East African country]:

"I'll continue in the role. So, I had hoped to, over the years, help establish more and more, and to support a postgraduate surgical training scheme in [East African country], because once doctors qualify, there's no further training. So, it's not possible for them to become a surgeon in [East African country] because there's no surgical training. And there's no one to support the teaching of that surgical training. So, personally, I would like to run MedicineAfrica teaching for the postgraduates who want to become surgeons, more senior surgical training, and also in-country surgical training courses to help support. Because actually, in 2005, just one of the hospitals got accredited with surgical training status for the first time. I would like to support that, but it's not something that comes under the new funding" (P9).

5. Implications and Future Work

5.1 Theoretical Implications

Similarly to Bateman et al. (2011), our study shows that the different types of commitment (need-based, affective and normative) co-exist and collectively can explain members' ongoing participation in the OC. In addition, commitment that derives from a sense of fulfilment and reciprocity are factors that explain members' continuing participation in online health communities. Further, our study adds

to the existing literature by showing that, with increased commitment towards the OC, members are found to undertake different roles often with leadership tasks within the OC. In our case, these expanded roles were either at a group or programme level showing not just members' continuing participation in the OC, but also increased responsibility and personal initiative.

Figure 1 below captures the findings of the study showing the trajectory that the doctor volunteers go through in order to build the strong commitment they developed for MedicineAfrica. Our study shows how members' own motivations are changing the more they engage with the OC. For them, participating in the specific online health community is no longer because they want to add a new skillset and work experience on the CV. The reasons have become more meaningful than these initial motives to include among others a sense of fulfilment and reciprocity. We have found that as their motivations are changing, so do their level of commitment and their roles with MedicineAfrica.

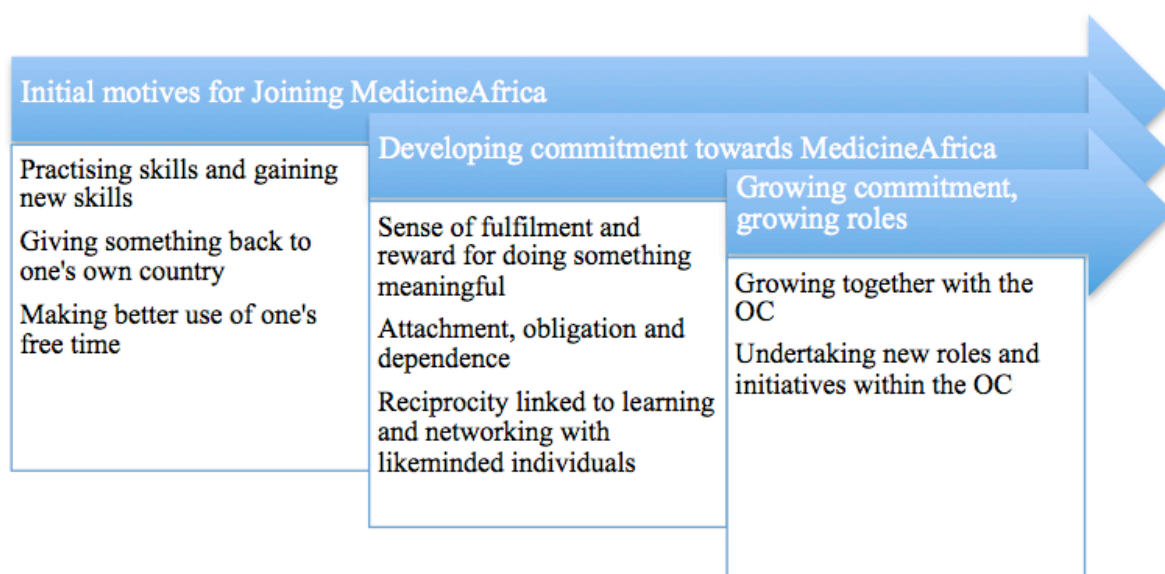


Figure 1. Factors influencing our participants' commitment in MedicineAfrica

5.2 Practical Implications

Our study has practical implications for the governance of online health communities. Founders and site managers of these OCs should aim to create opportunities for members to become active contributors on the site and take new initiatives with leading responsibilities to better support the OC. These opportunities will increase members' commitment and encourage them to show a stronger involvement in OC activities and actively contribute to its sustainability and growth.

5.3 Future Work

We are currently working on our collected dataset in order to further expand and refine our analysis which we expect to be complete by the time of the conference. In addition, we have arranged to interview some of our existing participants for a second or third time in order to get more information that we feel might be relevant as we are progressing with our more detailed analysis.

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References

- Agrawal, A. A., D. D. Ackerly, F. Adler, A. E. Arnold, C. Cáceres, D. F. Doak, E. Post, P. J. Hudson, J. Maron, K. A. Mooney, and M. Power, M. (2007). "Filling key gaps in population and community ecology." *Frontiers in Ecology and the Environment* 5 (3), 145-152.
- Ardichvili, A., V. Page, and T. Wentling (2003). "Motivation and barriers to participation in virtual knowledge-sharing communities of practice." *Journal of Knowledge Management* 7 (1), 64-77.
- Bandura, A. (1999). "Social Cognitive Theory: An Agentic Perspective." *Asian Journal of Social Psychology* 2 (1), 21-41.
- Bateman, P. J., P. H. Gray and B. S. Butler (2011). "Research note—the impact of community commitment on participation in online communities." *Information Systems Research* 22 (4), 841-854.
- Barrett, M., E. Oborn and W. Orlikowski (2016). "Creating Value in Online Communities: The Sociomaterial Configuring of Strategy, Platform, and Stakeholder Engagement." *Information Systems Research* 27 (4), 704-723.
- Benlian, A. and T. Hess (2011). "The Signaling Role of IT Features in Influencing Trust and Participation in Online Communities." *International Journal of Electronic Commerce*, 15 (4), 7-56.
- Bernardi, R. (2016). "How Do Online Communities of Patients Aggregate on Twitter? An Affordance Perspective." In: *Proceedings of the 37th International Conference on Information Systems*, December 11-14, Dublin, Ireland.
- Bernardi, R. and P. F. Wu (2017). "The Impact of Online Health Communities on Patients' Health Self-Management." In: *Proceedings of the 38th the International Conference on Information Systems*, December 10-13, Seoul, South Korea.
- Bock, G.W., M. K. Ahuja, A. Suh and L. X. Yap (2015). "Sustainability of a Virtual Community: Integrating Individual and Structural Dynamics." *Journal of the Association for Information Systems*, 16 (6) 418-447.
- Braun, V. and V. Clarke (2006). "Using thematic analysis in psychology." *Qualitative Research in Psychology* (3:2), 77-101.
- Cavaye, A. L. M. (1996). "Case Study Research: A Multi-Faceted Research Approach for IS." *Information Systems Journal* 6 (3), 227-242.
- Eisenhardt, K. M. (1989). "Building theories from case study research." *Academy of Management Review* 14 (4), 532-550.
- Faraj, S., S. L. Jarvenpaa and A. Majchrzak (2011). "Knowledge collaboration in online communities." *Organization Science* 22 (5), 1224-1239.
- Faraj, S., G. von Krogh, E. Monteiro and K. R. Lakhani (2016). "Special Section Introduction—Online Community as Space for Knowledge Flows." *Information Systems Research* 27 (4), 668-684.
- Foster, D. (2016). "'Keep complaining till someone listens': Exchanges of tacit healthcare knowledge in online illness communities." *Social Science & Medicine* 166, 25-32.
- Ganley, D., and C. Lampe (2009). "The ties that bind: Social network principles in online communities." *Decision Support Systems* 47 (3), 266-274.
- Goh, J. M., G. Guodong and R. Agarwal (2016). "The Creation of Social Value: Can an Online Health Community Reduce Rural-Urban Health Disparities?" *MIS Quarterly* 40 (1), 247-263.
- Goldschmidt, K. and J. Greene-Ryan (2014). "Massive open online courses in nursing education." *Journal of Pediatric Nursing* 29 (2), 184-186.
- Han, H., E. Nelson and N. Wetter (2014). "Medical students' online learning technology needs." *Clinical Teacher* 11 (1), 15-19.
- Hiltz, S. R. and M. Turoff (2002). "What makes learning networks effective?" *Communications of the ACM* 45 (4), 56-59.
- Kane, G. C., J. Johnson and A. Majchrzak (2014). "Emergent life cycle: The tension between knowledge change and knowledge retention in open online coproduction communities." *Management Science* 60 (12), 3026-3048.

- Lakhani, K. R. and R. G. Wolf (2005). "Why Hackers do what they do: Understanding Motivation and Effort in Free/Open Source Software Projects." In: *Perspectives on Free and Open Source Software*. Ed. by J. Feller, B. Fitzgerald, S. Hissam and K. R. Lakhani. Cambridge, MA, USA: MIT Press.
- Lee, F. S., D. Vogel and M. Limayem (2002). "Virtual community informatics: What we know and what we need to know." In: *Proceedings of the 35th Annual Hawaii International Conference on System Sciences (HICSS)*, Big Island, HI, 2863-2872.
- Lupton, D. (2018). *Digital Health – Critical and cross-Disciplinary Perspectives*, Routledge, Oxford.
- Meyer, J. P. and N. J. Allen (1991). "A three-component conceptualization of organizational commitment." *Human Resource Management Review* 1 (1), 61-89.
- O'Mahony, S. and F. Ferraro (2007). "The emergence of governance in an open source community." *Academy of Management Journal* 50 (5), 1079-1106.
- Panteli, N. (2016). "On leaders' presence: interactions and influences within online communities." *Behaviour & Information Technology* 35 (6), 490-499.
- Ransbotham, S. and G. C. Kane (2011). "Membership Turnover and Collaboration Success in Online Communities: Explaining Rises and Falls from Grace in Wikipedia." *MIS Quarterly* 35 (3), 613-627.
- Ren, Y., R. E. Kraut and S. Kiesler (2007). "Applying common identity and bond theory to design of online communities." *Organization Studies* 28 (3), 377-408.
- Ren, Y. and R. E. Kraut (2011). "A simulation for designing online community: Member motivation, contribution, and discussion moderation." *Information Systems Research*.
- Ross, D. A. (2007). "Backstage with the knowledge boys and girls: Goffman and distributed agency in an organic online community." *Organization Studies* 28 (3), 307-325.
- Soekijad, M., B. van den Hooff, M. Agterberg and M. Huysman (2011). "Leading to learn in networks of practice: two leadership strategies." *Organization Studies* 32 (8), 1005-1027.
- Von Krogh, G., S. Spaeth and K. R. Lakhani (2003). "Community, joining, and specialization in open source software innovation: a case study." *Research Policy*, 32 (7), 1217-1241.
- Wasko M., and S. Faraj (2005). "Why Should I Share? Examining Social Capital and Knowledge Contribution in Electronic Networks of Practice." *MIS Quarterly* 9 (1), 35-57.
- Wiener, Y. (1982). "Commitment in organizations: A normative view." *Academy of Management Review* 7 (3), 418-428.
- Woodward, A., M. Fyfe, J. Handuleh, P. Patel, B. Godman, A. Leather and A. Finlayson (2014). "Diffusion of e-health innovations in 'post-conflict' settings: a qualitative study on the personal experiences of health workers." *Human Resources for Health* 12 (22).
- Yen, H. R., S. H. Y. Hsu and C. Y. Huang. (2011). "Good Soldiers on the Web: Understanding the Drivers of Participation in Online Communities of Consumption." *International Journal of Electronic Commerce* 15 (4), 89-120.
- Yin, R. K. (2014). *Case study research: Design and methods*, Thousand Oaks, CA: Sage Publications, Inc.